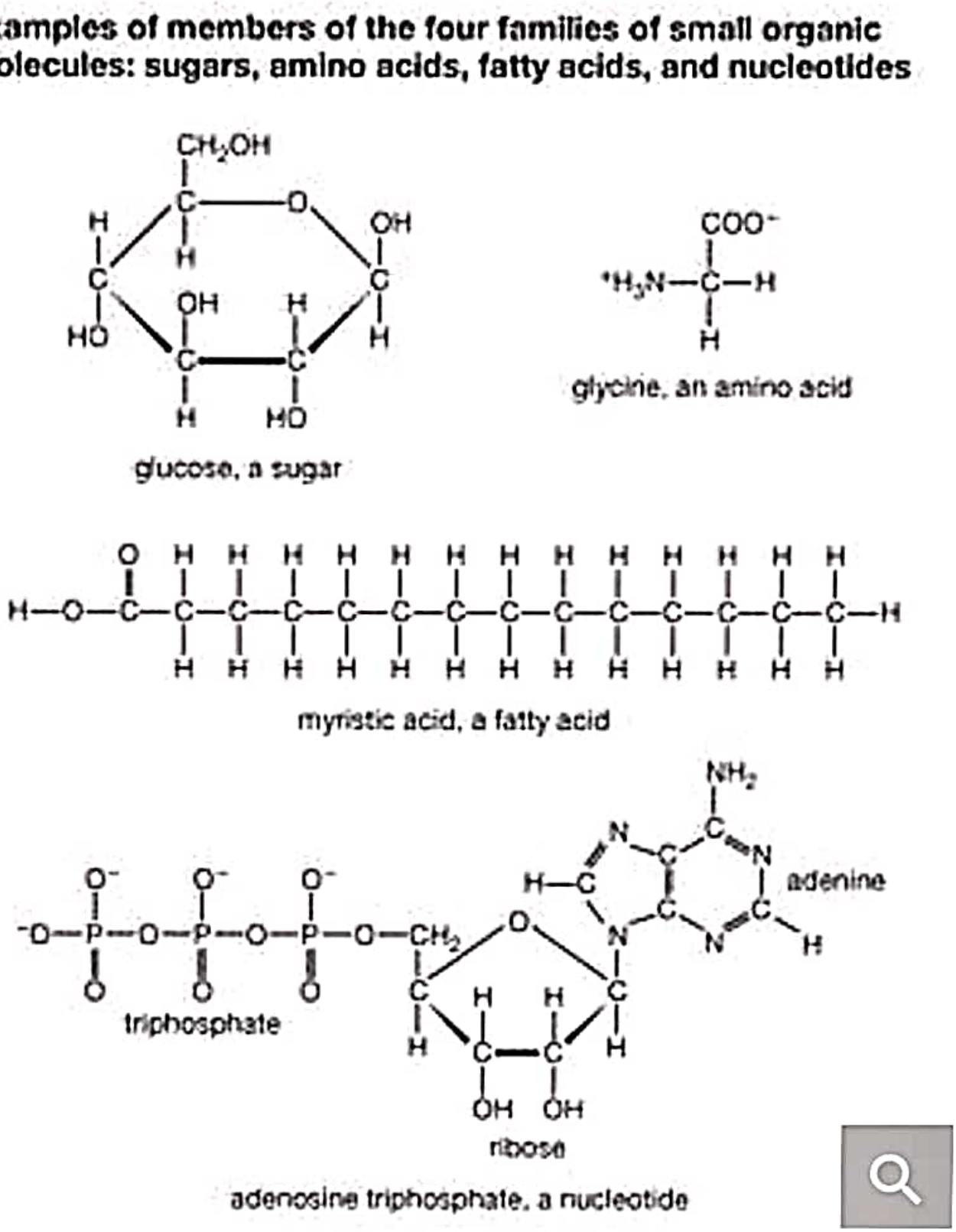
ATP is a nucleotide that consists of three main structures: the nitrogenous base, adenine; the sugar, ribose; and a chain of three phosphate groups bound to ribose. The phosphate tail of ATP is the actual power source which the cell taps. Available energy is contained in the bonds between the phosphates and is released when they are broken, which occurs through the addition of a water molecule (a process called hydrolysis). Usually only the outer phosphate is removed from ATP to yield energy; when this occurs ATP is converted to adenosine diphosphate (ADP), the form of the nucleotide having only two phosphates.



small organic molecules including adenosine triphosphate

Examples of members of the four families of small organic molecules: sugars (e.g., glucose), amino acids (e.g., glycine), fatty acids (e.g., myristic acid), and nucleotides (e.g., adenosine triphosphate, or ATP).